

Set	Items	Description
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Cost is in DialUnits

? b 410

22dec09	16:50:42	User295826	Session D2.1
	\$0.55	0.154	DialUnits File1
\$0.55	Estimated cost File1		
\$0.02	TELNET		
\$0.57	Estimated cost this search		
\$0.57	Estimated total session cost	0.154	DialUnits

File 410:The Chronolog 1991-2009/ Sep  
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Set	Items	Description
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? set hi ;set hi

HILIGHT set on as ''

HILIGHT set on as -

? b foodsci

22dec09	16:50:51	User295826	Session D2.2
	\$0.00	0.115	DialUnits File410
\$0.00	Estimated cost File410		
\$0.05	TELNET		
\$0.05	Estimated cost this search		
\$0.62	Estimated total session cost	0.269	DialUnits

SYSTEM:OS - DIALOG OneSearch

File 5:Biosis Previews(R) 1926-2009/Dec W2  
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File 6:NTIS 1964-2009/Dec W4  
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File 10:AGRICOLA 70-2009/Dec  
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File 50:CAB Abstracts 1972-2009/Dec W3  
(c) 2009 CAB International

File 51:Food Sci.&Tech.Abs 1969-2009/Dec W2  
(c) 2009 FSTA IFIS Publishing

File 53:FOODLINE(R): Science 1972-2009/Dec 20  
(c) 2009 LFRA

\*File 53: Please see HELP NEWS 53 for information on September updates.

File 65:Inside Conferences 1993-2009/Dec 22  
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File 144:Pascal 1973-2009/Dec W3  
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File 399:CA SEARCH(R) 1967-2009/UD=15126  
(c) 2009 American Chemical Society

\*File 399: Use is subject to the terms of your user/customer agreement.  
 IPCR/8 classification codes now searchable as IC-. See HELP NEWSIPCR.

Set	Items	Description
? s	chitosan	
S1	52071	CHITOSAN
? s	vanillin	
S2	11812	VANILLIN
? s	(vanillic)	
S3	7267	(VANILLIC)
? s	(film? or barrier? or layer?)	
Processing		
Processed	10 of	14 files ...
Completed processing all files		
	1706576	FILM?
	489574	BARRIER?
	1700231	LAYER?
S4	3560208	(FILM? OR BARRIER? OR LAYER?)
? s	s1 (s) s2 (s) s4	
	52071	S1
	11812	S2
	3560208	S4
S5	19	S1 (S) S2 (S) S4
? t	s5/medium,k/all	
>>>KWIC option is not available in file(s): 399		

5/K/1 (Item 1 from file: 5)  
 DIALOG(R)File 5: Biosis Previews(R)  
 (c) 2009 The Thomson Corporation. All rts. reserv.

0021243937 BIOSIS NO.: 200900585374  
 Factors Affecting Migration of Vanillin from Chitosan/Methyl  
 Cellulose Films  
 AUTHOR: Sangsuwan J (Reprint); Rattanapanone N; Auras R A; Harte B R;  
 Rachtanapun P  
 AUTHOR ADDRESS: Chiang Mai Univ, Fac Agroind, Dept Packaging Technol,  
 Chiang Mai 50100, Thailand\*\*Thailand  
 AUTHOR E-MAIL ADDRESS: jurmwan@chiangmai.ac.th  
 JOURNAL: Journal of Food Science 74 (7): pC549-C555 SEP 2009 2009  
 ITEM IDENTIFIER: doi:10.1111/j.1750-3841.2009.01266.x  
 ISSN: 0022-1147  
 DOCUMENT TYPE: Article  
 RECORD TYPE: Abstract  
 LANGUAGE: English

Factors Affecting Migration of Vanillin from Chitosan/Methyl  
 Cellulose Films

ABSTRACT: The diffusion kinetics and factors affecting the migration of vanillin from chitosan/methyl cellulose (Chi/MC) films into water, cantaloupe juice (CJ), pineapple juice (PJ), and citrate buffer adjusted to pH values of 3.5, 5, and 6.5 were studied. Vanillin was incorporated into the Chi/MC films to provide an inhibitory effect against microorganisms. Initial \*\*\*vanillin\*\*\* concentration in the films, temperature, and pH of extracting solvent impacted the migration behavior of \*\*\*vanillin\*\*\*. The diffusion coefficients (D) followed the Arrhenius equation and increased as temperature increased for all the solvents. As temperature rose, the rate

increment of the diffusion of vanillin into pineapple juice was higher than that into water and cantaloupe juice. \*\*\*Films\*\*\* containing lower vanillin content had a higher diffusion coefficient than those containing high \*\*\*vanillin\*\*\* content. Migration of \*\*\*vanillin\*\*\* was affected by pH rather than acid concentration. Lower pH resulted in a higher migration...

5/K/2 (Item 2 from file: 5)  
DIALOG(R)File 5:Biosis Previews(R)  
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12346064 BIOSIS NO.: 199497367349  
Chitosans carrying the methoxyphenyl functions typical of lignin  
AUTHOR: Muzzarelli Riccardo A A; Hari Pierluca  
AUTHOR ADDRESS: Fac. Med., Univ. Ancona, IT-60100 Ancona, Italy\*\*Italy  
JOURNAL: Carbohydrate Polymers 23 (3): p155-160 1994 1994  
ISSN: 0144-8617  
DOCUMENT TYPE: Article  
RECORD TYPE: Abstract  
LANGUAGE: English

ABSTRACT: Methoxyphenyl aldehydes vanillin, o-vanillin, syringaldehyde and veratraldehyde were found to react with chitosan under normal and reducing conditions and to impart insolubility and other characteristics to chitosan; for instance, o-vanillin yielded a bright yellow product exhibiting novel bands in the FTIR spectrum at 1630, 1460...

...at 5.52 and 20.12 2-theta values in the X-ray diffractogram. The films obtained from veratraldehyde were insoluble, biodegradable and mechanically resistant. Suspensions of Kraft lignin and chitosan yielded very thick pastes within minutes upon addition of an organic acid and, upon drying...

5/K/3 (Item 1 from file: 10)  
DIALOG(R)File 10:AGRICOLA  
(c) format only 2009 Dialog. All rts. reserv.

5271693 44255069 Holding Library: AGL  
Factors Affecting Migration of Vanillin from Chitosan/Methyl Cellulose Films  
Sangsuwan, J. Rattanapanone, N.; Auras, R.A.; Harte, B.R.; Rachtanapun, P.  
Blackwell Publishing Inc  
Journal of food science an official publication of the Institute of Food Technologists. 2009 Sept., v. 74, number 7 p. C549-C555.  
ISSN: 0022-1147  
DNAL CALL NO: 389.8 F7322  
Language: English

Factors Affecting Migration of Vanillin from Chitosan/Methyl Cellulose Films

The diffusion kinetics and factors affecting the migration of vanillin from chitosan/methyl cellulose (Chi/MC) films into water, cantaloupe juice (CJ), pineapple juice (PJ), and citrate buffer adjusted to pH values of 3.5, 5, and 6.5 were studied. \*\*\*Vanillin\*\*\* was incorporated into the Chi/MC films to provide an inhibitory effect

against microorganisms. Initial \*\*\*vanillin\*\*\* concentration in the films, temperature, and pH of extracting solvent impacted the migration behavior of \*\*\*vanillin\*\*\*. The diffusion coefficients (D) followed the Arrhenius equation and increased as temperature increased for all the solvents. As temperature rose, the rate increment of the diffusion of vanillin into pineapple juice was higher than that into water and cantaloupe juice. \*\*\*Films\*\*\* containing lower \*\*\*vanillin\*\*\* content had a higher diffusion coefficient than those containing high vanillin content. Migration of \*\*\*vanillin\*\*\* was affected by pH rather than acid concentration. Lower pH resulted in a higher migration...

DESCRIPTORS: \*\*\*vanillin\*\*\* ; \*\*\*\*\* ...

...chitosan; ...

... \*\*\*films\*\*\* (materials;

5/K/4 (Item 2 from file: 10)  
DIALOG(R)File 10:AGRICOLA  
(c) format only 2009 Dialog. All rts. reserv.

5224020 44255069 Holding Library: AGL

Factors Affecting Migration of Vanillin from Chitosan/Methyl Cellulose Films

Sangsuwan, J. Rattanapanone, N.; Auras, R.A.; Harte, B.R.; Rachtanapun, P.

Blackwell Publishing Inc  
Journal of food science an official publication of the Institute of Food Technologists. 2009 Sept., v. 74, number 7 p. C549-C555.  
ISSN: 0022-1147  
DNAL CALL NO: 389.8 F7322  
Language: English

Factors Affecting Migration of Vanillin from Chitosan/Methyl Cellulose Films

The diffusion kinetics and factors affecting the migration of vanillin from chitosan/methyl cellulose (Chi/MC) films into water, cantaloupe juice (CJ), pineapple juice (PJ), and citrate buffer adjusted to pH values of 3.5, 5, and 6.5 were studied. \*\*\*Vanillin\*\*\* was incorporated into the Chi/MC films to provide an inhibitory effect against microorganisms. Initial \*\*\*vanillin\*\*\* concentration in the films, temperature, and pH of extracting solvent impacted the migration behavior of \*\*\*vanillin\*\*\*. The diffusion coefficients (D) followed the Arrhenius equation and increased as temperature increased for all the solvents. As temperature rose, the rate increment of the diffusion of vanillin into pineapple juice was higher than that into water and cantaloupe juice. \*\*\*Films\*\*\* containing lower \*\*\*vanillin\*\*\* content had a higher diffusion coefficient than those containing high vanillin content. Migration of \*\*\*vanillin\*\*\* was affected by pH rather than acid concentration. Lower pH resulted in a higher migration...

5/K/5 (Item 3 from file: 10)  
DIALOG(R)File 10:AGRICOLA  
(c) format only 2009 Dialog. All rts. reserv.

4939725 44070296 Holding Library: AGL

Effect of chitosan/methyl cellulose films on microbial and quality characteristics of fresh-cut cantaloupe and pineapple

Sangsuwan, Jurnkwan Rattanapanone, Nithiya; Rachtanapun, Pornchai  
Amsterdam; New York: Elsevier  
Postharvest biology and technology. 2008 Sept., v. 49, number 3 p. 403-410.  
ISSN: 0925-5214  
DNAL CALL NO: SB129.P66  
Language: English

Two experimental films were applied on fresh-cut cantaloupe and pineapple and their effects on microbial control and fruit quality were investigated during storage at 10C C. Three types of \*\*\*films\*\*\* were used in this study: a commercial stretch film, an experimental chitosan/methyl cellulose film, and a chitosan/methyl cellulose film incorporating vanillin (vanillin \*\*\*film\*\*\*) as a natural antimicrobial agent. Fresh-cut fruit without any \*\*\*film\*\*\* wrapping served as controls. \*\*\*Chitosan\*\*\* /methyl cellulose film and vanillin film provided an inhibitory effect against Escherichia coli on fresh-cut cantaloupe. The \*\*\*chitosan\*\*\* /methyl cellulose film rapidly reduced the number of Saccharomyces cerevisiae yeast inoculated on cantaloupe and pineapple. \*\*\*Vanillin\*\*\* \*\*\*film\*\*\* was more efficient than chitosan/methyl cellulose in reducing the number of yeast, which decreased by 4logs in fresh-cut pineapple on day 6. Vanillin film increased the intensity of yellow color of pineapple. Pineapple removed from stretch \*\*\*film\*\*\* had higher respiration rates and ethanol contents than other treatments. Unsurprisingly, the stretch film maintained the moisture content in fruit better than other treatments. However, \*\*\*vanillin\*\*\* \*\*\*film\*\*\* reduced the ascorbic acid content in pineapple. At the end of storage, ascorbic acid in pineapple wrapped with vanillin film was only 10% of its original concentration.

DESCRIPTORS: \*\*\*chitosan\*\*\* ; ...

... \*\*\*films\*\*\* (materials...

... \*\*\*vanillin\*\*\* ; ;

5/K/6 (Item 4 from file: 10)  
DIALOG(R)File 10:AGRICOLA  
(c) format only 2009 Dialog. All rts. reserv.

4889230 44073221 Holding Library: AGL  
Effects of vanillin and plasticizer on properties of chitosan  
-methyl cellulose based film  
Sangsuwan, Jurnkwan Rattanapanone, Nithiya; Rachtanapun, Pornchai  
Wiley Subscription Services, Inc., A Wiley Company  
Journal of applied polymer science. 2008 Sept. 15, v. 109, number 6 p.  
3540-3545.  
ISSN: 0021-8995  
DNAL CALL NO: QD471.A1J5  
Language: English

Effects of vanillin and plasticizer on properties of chitosan  
-methyl cellulose based film  
Chitosan-methyl cellulose based films which incorporate vanillin as an antimicrobial agent and polyethylene glycol 400 (PEG) as a plasticizer were developed in this study. The effects of vanillin and plasticizer concentration on mechanical, barrier, optical, and thermal properties of chitosan-methyl cellulose \*\*\*film\*\*\* were evaluated. When the \*\*\*vanillin\*\*\* concentration was

increased at a given PEG level, film flexibility decreased while tensile strength increased slightly. \*\*\*Vanillin\*\*\* increased the \*\*\*barrier\*\*\* to oxygen but not water vapor. Increasing \*\*\*vanillin\*\*\* content resulted in less transparency and a more yellowish tint. The bulky nature of \*\*\*vanillin\*\*\* reduced \*\*\*film\*\*\* crystallization. When PEG concentration was increased at a given vanillin level, it resulted in greater \*\*\*film\*\*\* flexibility but reduced \*\*\*film\*\*\* strength. Water vapor permeability (WVP) and oxygen permeability (OP) increased with increase in PEG content. PEG contributed less to the opacity, yellowness, and crystallization of the \*\*\*film\*\*\* than did \*\*\*vanillin\*\*\*.

5/K/7 (Item 5 from file: 10)  
DIALOG(R)File 10:AGRICOLA  
(c) format only 2009 Dialog. All rts. reserv.

3414595 20435275 Holding Library: AGL  
Chitosans carrying the methoxyphenyl functions typical of lignin  
Muzzarelli, R.A.A. Ilari, P.  
Oxford : Elsevier Science Limited.  
Carbohydrate polymers. 1994. v. 23 (3) p. 155-160.  
ISSN: 0144-8617 CODEN: CAPOD8  
DNAL CALL NO: QD320.C35  
Language: English

Methoxyphenyl aldehydes vanillin, o-vanillin, syringaldehyde and veratraldehyde were found to react with chitosan under normal and reducing conditions and to impart insolubility and other characteristics to chitosan; for instance, o-vanillin yielded a bright yellow product exhibiting novel bands in the FTIR spectrum at 1630, 1460...

...at 5.52 and 20-12 2-theta values in the X-ray diffractogram. The films obtained from veratraldehyde were insoluble, biodegradable and mechanically resistant. Suspensions of Kraft lignin and \*\*\*chitosan\*\*\* yielded very thick pastes within minutes upon addition of an organic acid and, upon drying...

5/K/8 (Item 1 from file: 50)  
DIALOG(R)File 50:CAB Abstracts  
(c) 2009 CAB International. All rts. reserv.

0009942130 CAB Accession Number: 20093259749

Factors affecting migration of vanillin from chitosan/methyl cellulose \*\*\*films\*\*\*.

Sangsuwan, J.; Rattanapanone, N.; Auras, R. A.; Harte, B. R.; Rachtanapun, P.

Author email address: jurmkwan@chiangmai.ac.th

Dept. of Packaging Technology, Faculty of Agro-Industry, Chiang Mai University, Chiang Mai 50100, Thailand.

Journal of Food Science volume 74 (7): p.C549-C555

Publication Year: 2009

ISSN: 0022-1147

Digital Object Identifier: 10.1111/j.1750-3841.2009.01266.x

Publisher: Blackwell Publishing Oxford, UK

Language: English

Record Type: Abstract

Document Type: Journal article

Factors affecting migration of vanillin from chitosan/methyl cellulose \*\*\*films\*\*\* .

The diffusion kinetics and factors affecting the migration of vanillin from chitosan/methyl cellulose (Chi/MC) films into water, cantaloupe juice (CJ), pineapple juice (PJ), and citrate buffer adjusted to pH values of 3.5, 5, and 6.5 were studied. Vanillin was incorporated into the Chi/MC films to provide an inhibitory effect against microorganisms. Initial \*\*\*vanillin\*\*\* concentration in the films, temperature, and pH of extracting solvent impacted the migration behavior of \*\*\*vanillin\*\*\*. The diffusion coefficients (D) followed the Arrhenius equation and increased as temperature increased for all the solvents. As temperature rose, the rate increment of the diffusion of vanillin into pineapple juice was higher than that into water and cantaloupe juice. \*\*\*Films\*\*\* containing lower vanillin content had a higher diffusion coefficient than those containing high \*\*\*vanillin\*\*\* content. Migration of \*\*\*vanillin\*\*\* was affected by pH rather than acid concentration. Lower pH resulted in a higher migration...

5/K/9 (Item 2 from file: 50)  
DIALOG(R)File 50:CAB Abstracts  
(c) 2009 CAB International. All rts. reserv.

0009590350 CAB Accession Number: 20083182889

Effect of chitosan/methyl cellulose films on microbial and quality characteristics of fresh-cut cantaloupe and pineapple.

Sangsuwan, J.; Rattanapanone, N.; Rachtanapun, P.

Author email address: jurmkwan@chiangmai.ac.th

Postharvest Technology Institute, Chiang Mai University, Chiang Mai 50200, Thailand.

Postharvest Biology and Technology volume 49 (3): p.403-410

Publication Year: 2008

ISSN: 0925-5214

Digital Object Identifier: 10.1016/j.postharvbio.2008.02.014

Publisher: Elsevier Amsterdam, Netherlands

Language: English

Record Type: Abstract

Document Type: Journal article

Two experimental films were applied on fresh-cut cantaloupe and pineapple and their effects on microbial control and fruit quality were investigated during storage at 10(deg)C. Three types of \*\*\*films\*\*\* were used in this study: a commercial stretch film, an experimental chitosan/methyl cellulose film, and a chitosan/methyl cellulose film incorporating vanillin (vanillin

\*\*\*film\*\*\*) as a natural antimicrobial agent. Fresh-cut fruit without any

\*\*\*film\*\*\* wrapping served as controls. \*\*\*Chitosan\*\*\* /methyl cellulose film and vanillin film provided an inhibitory effect against *Escherichia coli* on fresh-cut cantaloupe. The \*\*\*chitosan\*\*\*

/methyl cellulose film rapidly reduced the number of *Saccharomyces cerevisiae* yeast inoculated on cantaloupe and pineapple. \*\*\*Vanillin\*\*\*

film was more efficient than chitosan/methyl cellulose in reducing the number of yeast, which decreased by 4 logs in fresh-cut pineapple on day 6. \*\*\*Vanillin\*\*\* \*\*\*film\*\*\* increased the intensity of yellow color of pineapple. Pineapple removed from stretch \*\*\*film\*\*\* had higher respiration rates and ethanol contents than other treatments.

Unsurprisingly, the stretch film maintained the moisture content in fruit better than other treatments. However, \*\*\*vanillin\*\*\* \*\*\*film\*\*\* reduced the ascorbic acid content in pineapple. At the end of storage, ascorbic acid in pineapple wrapped with vanillin film was only 10% of its original concentration.

5/K/10 (Item 1 from file: 51)  
DIALOG(R)File 51:Food Sci.&Tech.Abs  
(c) 2009 FSTA IFIS Publishing. All rts. reserv.

0001850929 FSTA ACCESSION NO.: 2009-11-Tb2005

Factors affecting migration of vanillin from chitosan/methyl cellulose \*\*\*films\*\*\* .

Sangsuwan, J.; Rattanapanone, N.; Auras, R. A.; Harte, B. R.; Rachtanapun, P.

Dept. of Packaging Technology, Faculty of Agro-Industry, Chiang Mai University, Chiang Mai 50100, Thailand. E-mail jurmkwan@chiangmai.ac.th  
Journal of Food Science 2009 , v74 (7) C549-C555  
LANGUAGE: English

Factors affecting migration of vanillin from chitosan/methyl cellulose \*\*\*films\*\*\* .

The diffusion kinetics and factors affecting the migration of vanillin from chitosan/methyl cellulose (Chi/MC) films into water, cantaloupe juice (CJ), pineapple juice (PJ), and citrate buffer adjusted to pH values of 3.5, 5, and 6.5 were studied. \*\*\*Vanillin\*\*\* was incorporated into the Chi/MC films to provide an inhibitory effect against microorganisms. Initial \*\*\*vanillin\*\*\* concentration in the films, temperature, and pH of extracting solvent impacted the migration behavior of \*\*\*vanillin\*\*\* . The diffusion coefficients (D) followed the Arrhenius equation and increased as temperature increased for all the solvents. As temperature rose, the rate increment of the diffusion of vanillin into pineapple juice was higher than that into water and cantaloupe juice. \*\*\*Films\*\*\* containing lower \*\*\*vanillin\*\*\* content had a higher diffusion coefficient than those containing high vanillin content. Migration of \*\*\*vanillin\*\*\* was affected by pH rather than acid concentration. Lower pH resulted in a higher migration...

5/K/11 (Item 2 from file: 51)  
DIALOG(R)File 51:Food Sci.&Tech.Abs  
(c) 2009 FSTA IFIS Publishing. All rts. reserv.

0001797507 FSTA ACCESSION NO.: 2008-09-Jb4035

Effect of chitosan/methyl cellulose films on microbial and quality characteristics of fresh-cut cantaloupe and pineapple.

Jurmkwan Sangsuwan; Nithiya Rattanapanone; Pornchai Rachtanapun  
Postharvest Technology Institute, Chiang Mai University, Chiang Mai 50200, Thailand. Tel. +66 53948226. Fax +66 53948201. E-mail jurmkwan@chiangmai.ac.th  
Postharvest Biology and Technology 2008 , v49 (3) 403-410  
LANGUAGE: English

Two experimental films were applied on fresh-cut cantaloupe and pineapple and their effects on microbial control and fruit quality were investigated during storage at 10(deg)C. Three types of \*\*\*films\*\*\* were used in this study: a commercial stretch film, an experimental



chitosan/methyl cellulose film, and a chitosan/methyl cellulose film incorporating vanillin (vanillin \*\*\*film\*\*\*) as a natural antimicrobial agent. Fresh-cut fruit without any \*\*\*film\*\*\* wrapping served as controls. \*\*\*Chitosan\*\*\* /methyl cellulose film and vanillin film provided an inhibitory effect against Escherichia coli on fresh-cut cantaloupe. The \*\*\*chitosan\*\*\* /methyl cellulose film rapidly reduced the number of Saccharomyces cerevisiae yeast inoculated on cantaloupe and pineapple. \*\*\*Vanillin\*\*\* \*\*\*film\*\*\* was more efficient than chitosan/methyl cellulose in reducing the number of yeast, which decreased by 4logs in fresh-cut pineapple on day 6. Vanillin film increased the intensity of yellow color of pineapple. Pineapple removed from stretch \*\*\*film\*\*\* had higher respiration rates and ethanol contents than other treatments. Unsurprisingly, the stretch film maintained the moisture content in fruit better than other treatments. However, \*\*\*vanillin\*\*\* \*\*\*film\*\*\* reduced the ascorbic acid content in pineapple. At the end of storage, ascorbic acid in pineapple wrapped with vanillin film was only 10% of its original concentration. All rights reserved, Elsevier.

5/K/12 (Item 1 from file: 53)  
DIALOG(R)File 53:FOODLINE(R): Science  
(c) 2009 LFRA. All rts. reserv.

01187071 FOODLINE ACCESSION NUMBER: 784029  
Factors affecting migration of vanillin from chitosan/methyl cellulose \*\*\*films\*\*\* .  
Sangsuwan J; Rattanananone N; Auras R A; Harte B R; Rachtanapun P  
Journal of Food Science (September), 74 (7), C549-C555 (28 reference)  
2009  
ISSN NO: 0022-1147  
LANGUAGE: English  
DOCUMENT TYPE: Journal article

Factors affecting migration of vanillin from chitosan/methyl cellulose \*\*\*films\*\*\* .  
ABSTRACT: The diffusion kinetics and factors affecting the migration of vanillin from chitosan/methyl cellulose films into water, cantaloupe juice, pineapple juice, and citrate buffer adjusted to different pH values, were examined in this study. \*\*\*Vanillin\*\*\* was added to inhibit microorganisms. Factors affecting the migration behaviour of \*\*\*vanillin\*\*\* are discussed. The diffusion coefficients followed the Arrhenius equation and increased as temperature increased.

5/K/13 (Item 2 from file: 53)  
DIALOG(R)File 53:FOODLINE(R): Science  
(c) 2009 LFRA. All rts. reserv.

01127879 FOODLINE ACCESSION NUMBER: 756176  
Effect of chitosan/methyl cellulose films on microbial and quality characteristics of fresh-cut cantaloupe and pineapple.  
Sangsuwan J; Rattanananone N; Rachtanapun P  
Postharvest Biology and Technology (September), 49 (3), 403-410 (33 reference)  
2008  
ISSN NO: 0925-5214  
LANGUAGE: English  
DOCUMENT TYPE: Journal article

ABSTRACT: There is a need develop biodegradable packaging films from sustainable sources. \*\*\*Chitosan\*\*\* is a natural polymer with antimicrobial and vanillin is a phenolic acid with antimicrobial activity. The effects of a commercial \*\*\*film\*\*\*, \*\*\*chitosan\*\*\* /methyl cellulose film and chitosan/methyl cellulose film containing vanillin on the microbiological quality, appearance and shelf life of packaged ready-to-eat fresh-cut cantaloupe and pineapple are described. The \*\*\*vanillin\*\*\* -containing \*\*\*film\*\*\* was the most effective at reducing the numbers of Escherichia coli and yeasts, possibly due to vanillin diffusing from the film into the product. Although the sensory properties of fresh-cut fruits wrapped in vanillin-containing films were acceptable, packaging did affect fruit colour and vitamin C content. It is thought that the water transmission properties of the antimicrobial films will need to be improved as the stretch film maintained fruit moisture content better.

5/K/14 (Item 1 from file: 144)  
 DIALOG(R)File 144:Pascal  
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19374579 PASCAL Number: 09-0470996  
 Effects of Vanillin and Plasticizer on Properties of Chitosan  
 -Methyl Cellulose Based Film  
 SANGSUWAN Jurmkan; RATTANAPANONE Nithiya; RACHTANAPUN Pornchai  
 Postharvest Technology Institute, Chiangmai University, Chiangmai 50200,  
 Thailand; Department of Food Science and Technology, Faculty of  
 Agro-Industry, Chiangmai University, Chiangmai 50100, Thailand; Department  
 of Packaging Technology, Faculty of Agro-Industry, Chiangmai University,  
 Chiangmai 50100, Thailand  
 Journal: Journal of applied polymer science, 2008, 109 (6) 3540-3545  
 Language: English

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Effects of Vanillin and Plasticizer on Properties of Chitosan  
 -Methyl Cellulose Based Film  
Chitosan-methyl cellulose based films which incorporate vanillin as an antimicrobial agent and polyethylene glycol 400 (PEG) as a plasticizer were developed in this study. The effects of vanillin and plasticizer concentration on mechanical, barrier, optical, and thermal properties of chitosan-methyl cellulose \*\*\*film\*\*\* were evaluated. When the \*\*\*vanillin\*\*\* concentration was increased at a given PEG level, film flexibility decreased while tensile strength increased slightly. \*\*\*Vanillin\*\*\* increased the \*\*\*barrier\*\*\* to oxygen but not water vapor. Increasing \*\*\*vanillin\*\*\* content resulted in less transparency and a more yellowish tint. The bulky nature of \*\*\*vanillin\*\*\* reduced \*\*\*film\*\*\* crystallization. When PEG concentration was increased at a given vanillin level, it resulted in greater \*\*\*film\*\*\* flexibility but reduced \*\*\*film\*\*\* strength. Water vapor permeability (WVP) and oxygen permeability (OP) increased with increase in PEG content. PEG contributed less to the opacity, yellowness, and crystallization of the \*\*\*film\*\*\* than did \*\*\*vanillin\*\*\*.

5/K/15 (Item 2 from file: 144)  
 DIALOG(R)File 144:Pascal  
 (c) 2009 INIST/CNRS. All rts. reserv.

19317719 PASCAL Number: 09-0411321

Factors Affecting Migration of Vanillin from Chitosan/Methyl Cellulose Films

SANGSUWAN J; RATTANAPANONE N; AURAS R A; HARTE B R; RACHTANAPUN P  
Dept. of Packaging Technology, Faculty of Agro-Industry, Chiang Mai University  
, Chiang Mai 50100, Thailand; Dept. of Food Science and Technology, Faculty  
of Agro-Industry, Chiang Mai University, Chiang Mai 50100, Thailand; School of  
Packaging, Michigan State University, East Lansing, MI 48824-1223, United States  
Journal: Journal of food science, 2009, 74 (7) C549-C555  
Language: English

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Factors Affecting Migration of Vanillin from Chitosan/Methyl Cellulose Films

5/K/16 (Item 3 from file: 144)  
DIALOG(R)File 144:Pascal  
(c) 2009 INIST/CNRS. All rts. reserv.

18757763 PASCAL Number: 08-0356562

Effect of chitosan/methyl cellulose films on microbial and quality characteristics of fresh-cut cantaloupe and pineapple  
SANGSUWAN Jurmkan; RATTANAPANONE Nithiya; RACHTANAPUN Pornchai  
Postharvest Technology Institute, Chiang Mai University, Chiang Mai 50200  
, Thailand; Department of Food Science and Technology, Faculty of  
Agro-Industry, Chiang Mai University, Chiang Mai 50100, Thailand;  
Department of Packaging Technology, Faculty of Agro-Industry. Chiang Mai  
University, Chiang Mai 50100, Thailand  
Journal: Postharvest biology and technology, 2008, 49 (3) 403-410  
Language: English

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Two experimental films were applied on fresh-cut cantaloupe and pineapple and their effects on microbial control and fruit quality were investigated during storage at 10 Degree C. Three types of \*\*\*films\*\*\* were used in this study: a commercial stretch film, an experimental chitosan/methyl cellulose film, and a chitosan/methyl cellulose film incorporating vanillin (vanillin \*\*\*film\*\*\*) as a natural antimicrobial agent. Fresh-cut fruit without any \*\*\*film\*\*\* wrapping served as controls. \*\*\*Chitosan\*\*\* /methyl cellulose film and vanillin film provided an inhibitory effect against *Escherichia coli* on fresh-cut cantaloupe. The \*\*\*chitosan\*\*\* /methyl cellulose film rapidly reduced the number of *Saccharomyces cerevisiae* yeast inoculated on cantaloupe and pineapple. \*\*\*Vanillin\*\*\* \*\*\*film\*\*\* was more efficient than chitosan/methyl cellulose in reducing the number of yeast, which decreased by 4 logs in fresh-cut pineapple on day 6. Vanillin film increased the intensity of yellow color of pineapple. Pineapple removed from stretch \*\*\*film\*\*\* had higher respiration rates and ethanol contents than other treatments. Unsurprisingly, the stretch film maintained the moisture content in fruit better than other treatments. However, \*\*\*vanillin\*\*\* \*\*\*film\*\*\* reduced the ascorbic acid content in pineapple. At the end of storage, ascorbic acid in pineapple wrapped with vanillin film was only 10% of its original concentration.

5/K/17 (Item 4 from file: 144)  
DIALOG(R)File 144:Pascal  
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11586717 PASCAL Number: 94-0472808  
Chitosans carrying the methoxyphenyl functions typical of lignin  
MUZZARELLI R A A; ILARI P  
University Ancona, faculty medicine, 60100 Ancona, Italy  
Journal: Carbohydrate polymers, 1994, 23 (3) 155-160  
Language: English

Methoxyphenyl aldehydes vanillin, o-vanillin, syringaldehyde and veratraldehyde were found to react with chitosan under normal and reducing conditions and to impart insolubility and other characteristics to chitosan; for instance, o-vanillin yielded a bright yellow product exhibiting novel bands in the FTIR spectrum at 1630, 1460...

...at 5.52 and 20.12 2 theta values in the X-ray diffractogram. The films were insoluble, biodegradable and mechanically resistant

5/K/18 (Item 1 from file: 399)  
DIALOG(R)File 399:CA SEARCH(R)  
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151468659 CA: 151(21)468659n JOURNAL  
Factors affecting migration of vanillin from chitosan/methyl cellulose films  
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JOURNAL: J. Food Sci. (Journal of Food Science) DATE: 2009 VOLUME: 74  
NUMBER: 7 PAGES: C549-C555 CODEN: JFDSA2 ISSN: 0022-1147 LANGUAGE: English PUBLISHER: Wiley-Blackwell

5/K/19 (Item 2 from file: 399)  
DIALOG(R)File 399:CA SEARCH(R)  
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149357680 CA: 149(16)357680b JOURNAL  
Effects of vanillin and plasticizer on properties of chitosan-methyl cellulose based film  
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JOURNAL: J. Appl. Polym. Sci. (Journal of Applied Polymer Science)  
DATE: 2008 VOLUME: 109 NUMBER: 6 PAGES: 3540-3545 CODEN: JAPNAB  
ISSN: 0021-8995 LANGUAGE: English PUBLISHER: John Wiley & Sons, Inc.